Amendments to the Claims

In the Claims:

1. (currently amended) An apparatus for forming a three-dimensional structure from a gaseous medium~~,~~ comprising:

a processing chamber to contain the gaseous medium; and

a holographic projector to project at least one hologram into the gaseous medium within the processing chamber, wherein the hologram imparts energy to dissociate gas precursors within the gaseous medium causing dissociated gas precursors to deposit in a pattern corresponding to the at least one hologram to thereby form the three-dimensional structure.

2. Canceled.

3. (previously presented) The apparatus of claim 1 wherein the gas precursors within the medium are gaseous organometallic compounds.

4. Canceled.

5. Canceled.

6. Canceled.

7. (previously presented) An apparatus to deposit a three-dimensional structure comprising:

a holographic projector to project a series of holograms; and

a processing chamber, wherein the processing chamber further comprises:

a window, wherein the window is transparent to the holograms;

a plane on which the holograms are imaged;

an inlet to receive the gas precursors from the gaseous delivery system, wherein the hologram imparts energy to dissociate the gas precursors causing dissociated gas precursors to deposit in the plane in a pattern corresponding to the hologram; and

an outlet to exhaust effluent from the processing chamber.

8. (previously presented) The apparatus of Claim 7, wherein the holographic projector further comprises:

a laser light source to generate coherent collimated electromagnetic energy;

a computer driven phase plate placed in a path of the coherent collimated electromagnetic energy to the hologram.

9. (currently amended) A method for forming a three-dimensional solid structure, the method comprising:

establishing a process environment having a controllable pressure, temperature and atmospheric composition, wherein the atmospheric composition comprises gas precursors; and

imaging a first hologram within the process environment, wherein the hologram imparts energy to the gas precursors, causing the gas precursors to dissociate, wherein dissociated solids from the gas precursors form a first solid layer corresponding to the hologram; and

imaging a subsequent hologram within the process environment, wherein the subsequent hologram energy to the gas precursors, causing the gas precursors to dissociate, wherein dissociated solids from the gas precursors form a subsequent solid layer corresponding to the subsequent hologram, wherein the subsequent solid layer is joined to the first solid layer thereby forming a three-dimensional structure.

10. (previously presented) The apparatus of Claim 1, wherein the energy to dissociate gas precursors corresponds to a wavelength of electromagnetic energy used to project the at least one hologram.

11. (previously presented) The apparatus of Claim 1, wherein the energy to dissociate gas precursors corresponds to absorption bands of the gas precursors.

12. (currently amended) The apparatus of Claim 1, wherein ~~a pressure and temperature of~~ the gaseous medium pressure within the processing chamber is ~~are~~ manipulated to manipulate a deposition rate of the dissociated gas precursors.

13. (previously presented) The apparatus of Claim 1, wherein an intensity of the at least one hologram is manipulated to manipulate a deposition rate of the dissociated gas precursors.

14. (previously presented) The apparatus of Claim 3 wherein the gaseous organometallic compounds allow metal to be deposited in the pattern corresponding to the at least one hologram.

15. (previously presented) The apparatus of Claim 1, wherein the at least one hologram is projected onto a stage within the processing chamber.

16. (previously presented) The apparatus of Claim 15, wherein the stage is thermally biased.

17. (previously presented) The apparatus of Claim 1, wherein the holographic projector further comprises a computer driven phase plate illuminated by a laser source to generate the at least one hologram.

18. (previously presented) The method of Claim 9, wherein the energy to dissociate gas precursors corresponds to a wavelength of electromagnetic energy used to project the first hologram and subsequent hologram.

19. (previously presented) The method of Claim 9, wherein the energy to dissociate gas precursors corresponds to absorption bands of the gas precursors.

20. (previously presented) The method of Claim 9, wherein a pressure and temperature of the gaseous medium within the processing chamber are manipulated to manipulate a deposition rate of the dissociated solids.

21. (previously presented) The method of Claim 9, wherein an intensity of the first hologram and subsequent hologram is manipulated to manipulate a deposition rate of the dissociated solids.

22. (previously presented) The method of Claim 9 wherein the gas precursors are gaseous organometallic compounds that allow metal to be deposited at the dissociated solids.

23. (previously presented) The method of Claim 9, wherein the first hologram and subsequent hologram are projected onto a stage within the processing environment.

24. (previously presented) The method of Claim 23, wherein the stage is thermally biased.

25. (previously presented) The method of Claim 9, wherein a holographic projector comprising a computer driven phase plate illuminated by a laser source is used to generate the first hologram and subsequent hologram.

26. (new) The apparatus of Claim 12, wherein the gaseous medium pressure ranges from about 0 psia to about 100 psia.